

EDIBLE CURRICULUM: MODELING LAVA VISCOSITY USING PUDDING.

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This laboratory exercise demonstrates the influence of viscosity on flows in order to understand some of the factors which govern the size and shape of volcanic lava flows, flow fields, and constructs. The exercise is both educational and entertaining, using a material that all students enjoy working with: pudding. Students work in groups so that responsibilities can be divided according to individual interests; more artistic students can concentrate on sketching the flows while other students can concentrate on measurements. An additional benefit of the exercise is the "hands on" aspect in building and then using laboratory models for comparison with features on Earth and other planets and moons. The activity is divided into three parts. First, students compare flows of different viscosities to gain an understanding of what viscosity means. Next, they compare higher viscosity "felsic" (vanilla) pudding flows with lower

viscosity "mafic" (chocolate) pudding flows to examine the potential effects of different mineral compositions on viscosity and morphology. Chopped nuts are added to demonstrate the effect of increasing the crystal content (and hence, viscosity) of the flow. Finally, students work individually to compare their laboratory models with images of volcanoes on Earth and other planets and moons to infer some of the factors which affected the morphology of actual landforms.

This exercise was presented to educators in Arizona and is undergoing field testing (in Arizona and Texas). The activity can be modified for different grade levels, from 5-12, and also can be presented as a demonstration. The complete text of the exercise is available on the Internet via the web page of the Planetary Geology Group at Arizona State University (<http://europa.la.asu.edu/>).